A MONOGRAPH

ON THE

WOOLLEN FABRICS

OF THE

BOMBAY PRESIDENCY

BY

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CHAPTER I.

Introductory.

The woollen industry in this Presidency, in so far as native enterprise is concerned, is confined to the manufacture of blankets, carpets, rugs, felt and sacking. Blanket-weaving is carried on to a greater or less extent in every district except Kánara, and felt-making is almost equally well distributed. Carpets are made at a few factories in and near Ahmedabad and at one place, Bubak, in the Karáchi district in Sind. Rugs and sacking are made exclusively in Sind, where the industry exists in every district.

There is only one woollen mill in the Presidency. It is situated in Bombay and is owned by the Bombay Woollen Manufacturing Company. It turns out blankets, horse cloths, material for army overcoats and clothing and serges of various qualities.

In the jails, carpets are made for sale, and blankets and clothing for the prisoners.

There is no good class of wool grown in the Presidency. The staple is generally coarse and short and the fleece full of hairs, technically known as 'kemps,' which will not 'felt,' and which protrude from the surface of the fabric when woven. Felting, or milling as it is also called, is a technical name for a process which is commonly known as shrinking, and is that process by which the threads in a fabric are so closely drawn together that they are practically indistinguishable from one another. Hair, unlike wool, will not shrink, nor has any machinery been yet invented for the separation of these kemps from the wool fibres. In a coarse blanket the presence of hair is an advantage, but in a cloth it is a great defect, and though it cannot be avoided in working with Indian wool, the appearance of hair is removed by passing the cloth under an extremely sharp knife, which shaves off all the projecting hairs. In the case of Cashmere wool, which has a very fine staple, kemps are removed to a certain extent by hand: a tedious, costly and at best inefficient method, for a large number of hairs are certain to remain with the wool.

The best Indian wool used at the Bombay Woollen Mill comes from Rájputána, Márwár and Káthiáwár, but neither these nor any others grown in India approach Australian wool in point of quality. The prices paid by this mill for its wool vary from Rs. 45 to Rs. 300 per candy of 588 lbs., but as a bale of the former quality of wool would probably contain as much as 70 per cent. of sand deliberately packed with the fleece with the idea of defrauding the purchaser, the

price, Rs. 45, is really paid for perhaps only 177 lbs. of wool, a rate which works out to about 4 annas per lb. This is not the cheapest wool purchased by the mill. A coarse grey wool from the Deccan, fairly free from sand and grease, fetches about Rs. 55 per candy or not quite $1\frac{1}{2}$ annas per lb. The highest price, Rs. 300 per candy, is for Australian wool and is equivalent to a rate of about 8 annas per lb. The worst offenders in the matter of sand are wools from Khorassan, Kandahar and Ghorabari in Sind.

Sheep are generally shorn twice a year throughout the Presidency; most commonly in May and November, though in places the periods are later by as much as a month or more. Before the shearing, generally on the previous day, the sheep are washed without soap. In Kaira sheep are said to be washed once a month, preferably in running water, which is supposed to lengthen the staple. The winter-grown fleece shorn about May is always considered to be superior to the wool obtained at the November shearing, and fetches a higher price in the Bombay market for export to Europe. White Gujarát wool after cleaning fetches as much as Rs. 175 per candy or a little over $4\frac{1}{2}$ annas per lb.

The weight of a clean fleece of wool must of course vary very much, but the average of fleeces grown on this side of India is about 1 lb. In England fleeces average between 3 and 4 lbs. The prevailing colour of Sind and Gujarát wool is white, whilst Khándesh and Deccan wools are generally black.

To this characteristic of Indian wool, *viz.*, the short staple, is due the fact that no worsted yarn is spun in the Bombay Woollen Mill. Worsted, from which all the finest varieties of woollen cloth are woven, is a yarn spun from the long staple of the fleece from which the short fibres have been extracted by combing. Probably the only Asiatic wools which find their way into India of sufficiently long staple for the spinning of worsted yarn are those from Kandahar or Thibet, or the better qualities of Khorassan wool.

CHAPTER II.

Wool Spinning.

The first process through which the raw wool has to pass, after being sorted, is cleaning. This is generally performed by Mahomedan Pinjáris using the bow ('kamán'), an operation depicted in Plate I. The term used does not express the nature of the operation as well as might be wished, though it is hard to find a better. The purpose of the operation is somewhat analogous to that of 'ginning' in the cotton industry and it corresponds to a very limited extent to that of 'carding' in an English woollen mill. The application of either of these terms to the operation in question would be illegitimate.

The instrument is suspended by a cord attached to the middle of the string of another bow of the ordinary kind, and this bow is fastened to a peg in the wall. By this means a certain amount of play is afforded to the instrument, which is so adjusted that the string just almost touches a heap of wool placed on the

Pinjari cleaning wool with bow.

Plate II.

Fig.(a) Spinning woollen yarn on the rahat.

Fig.(b) The first stage in warping: measuring off threads of the required length

ground. The Pinjári then holding the instrument in his left hand presses it down until the gut just touches the heap of wool and at the same time, he strikes the gut with a short wooden club shaped very much like a dumb-bell. The vibrating gut takes up a little of the wool and the instrument is allowed to rise clear of the heap; a second or third stroke of the club frees the gut of the clinging fibres, which are thrown to a short distance, separated from all the heavier impurities which fall back on the heap. The kamán deals effectively with the tangled fibres in a fleece, though it fails to remove all the burrs which proverbially cling to a sheep's back in great numbers. A Pinjári charges about one anna for cleaning a seer of wool.

One of the weaver's family, generally a woman or a boy, next proceeds to spin the wool into yarn. The machine ('rahát') and the manner in which the operation is performed are shown in figure (*a*) on Plate II. The spindle ('chát') is turned by a cord passing over a roughly shaped driving-wheel, which is turned by hand. The spinner takes in his left hand a quantity of raw wool, which he connects with the point of the spindle by a short length of yarn previously spun or roughly twisted in his hands for the purpose. Then as he begins to turn the wheel, he slowly withdraws the handful of wool away from the spindle as far as he conveniently can. There is now a length of perhaps two feet of quivering twisting yarn between the spinner's hand and the point of the spindle. As soon as this is sufficiently spun, the operator's arm relaxes and the yarn is allowed to coil itself on the still turning spindle. Then the hand containing the unspun wool is again withdrawn and the operation recommences.

Shepherds may frequently be seen employing their leisure in spinning whilst they tend their flocks. The instrument is of the simplest kind and is so small as to be easily carried about. It consists of a circular disc about 2½ inches in diameter, generally made of a piece of flat tile or stone, with a pointed wooden axis about 6 inches long. The axis has to be carefully fitted in the middle of the disc and at right angles to its surface.

A short length of yarn is wound on the axis, beginning at the end inserted in the disc and running up to the point, where it is tied in a simple loop knot. The end of this length of yarn is then connected with a length of wool drawn out to the requisite fineness from the handful which the shepherd holds, and just sufficiently twisted to enable it to bear the weight of the instrument. Then raising his right thigh into a horizontal position and holding the instrument suspended by the wool in his left hand so that it is on a level with his thigh, he presses the axis with the palm of his right hand against his thigh and rolls it rapidly along. The instrument, being released, continues spinning, and the length of wool up to the point where it is held in the shepherd's left hand is twisted into yarn. This is then wound on the axis and secured at the point in the same way as before. The process is repeated until the instrument will hold no more, when the yarn is wound off into knots.

Sometimes two pieces of stick, about 6 inches long, are used instead of the disc. The sticks are held together at right angles by a pointed wooden axis inserted through a hole in the middle of each stick, the middle being slightly thicker than the ends. The process of spinning is the same as before, though the yarn instead of being wound on the axis, is wound in the shape of a ball on the two sticks which are used as a core. When the instrument is full, the axis is

withdrawn and the two sticks, which were purposely not dovetailed into each other, are thereby released and are easily pulled out of the ball of yarn.

A simpler form of the same instrument may also be seen in Sind, where shepherds frequently use a short stout piece of stick slightly lighter at the ends than in the middle. This, being spun round in the air, twists the wool by which it is suspended into yarn; as each length of wool is spun into yarn it is wound on the stick and secured by taking a few turns round a little piece of very thin stick passed through the ball of yarn. This instrument does not turn out such good yarn as the disc, because it does not spin so evenly. In fact, the yarn spun on the disc is often superior, owing to its more even quality, to that spun by means of the spinning-wheel.

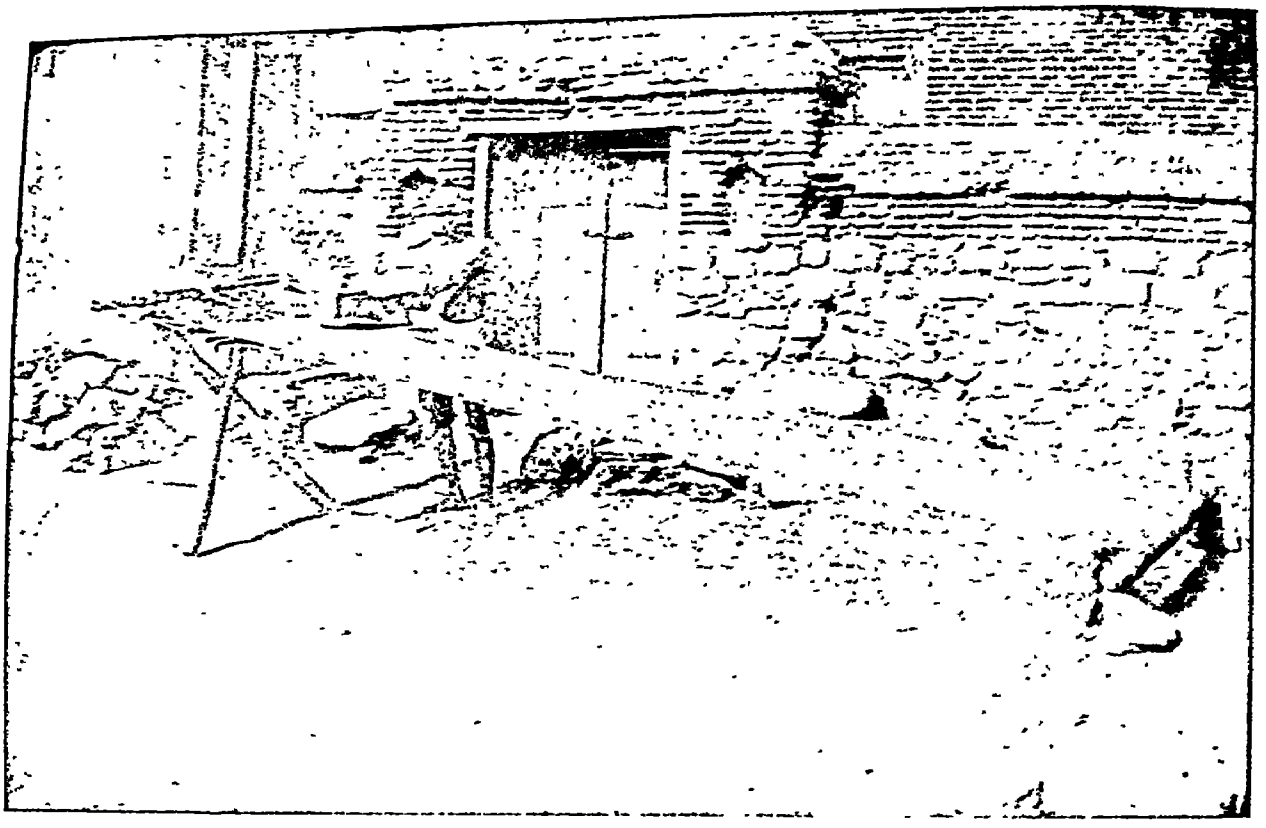
CHAPTER III.

Blankets and Sacking.

The yarn has next to be warped. The first thing to be done is to measure off the requisite number of threads or 'ends,' each of the proper length, which will be slightly greater than the length of fabric to be woven. The manner of doing this is shown in figure (*b*) on Plate II. The instrument shown there consists of seven upright pegs fixed in a wooden base. There are two parallel rows of three pegs each, and there is one peg between these rows. The warper, sitting beside the instrument, passes one end of the yarn through a piece of hollow cane, and makes the end fast to one of the end pegs. The object of the hollow cane is to enable the warper to reach all the pegs without moving, though the piece shown in the photograph would not perhaps convey that impression. Calling the peg to which the yarn is tied No. 1, the other peg at the same end No. 7, the two middle pegs Nos. 2 and 6 respectively, the two at the further end Nos. 3 and 5, and the centre peg No. 4, then the yarn is passed round outside the pegs in their numerical order as far as No. 7, when, instead of being carried on to No. 1, it is brought back in the reverse direction, with this difference, that instead of passing outside all the pegs, it is now passed inside the two middle pegs Nos. 2 and 6. At each of these two points, therefore, the yarn crosses and recrosses, forming a loop, technically called a lease. The distance round the pegs and back again is the length of the warp. A greater or shorter length can be obtained by varying the order in which the threads are wound on the pegs or by omitting some of the pegs altogether. The process is repeated until the requisite number of threads has been wound on the pegs. In blanket weaving it is unusual to find more than 8 or 10 warp-threads per inch of width of the web.

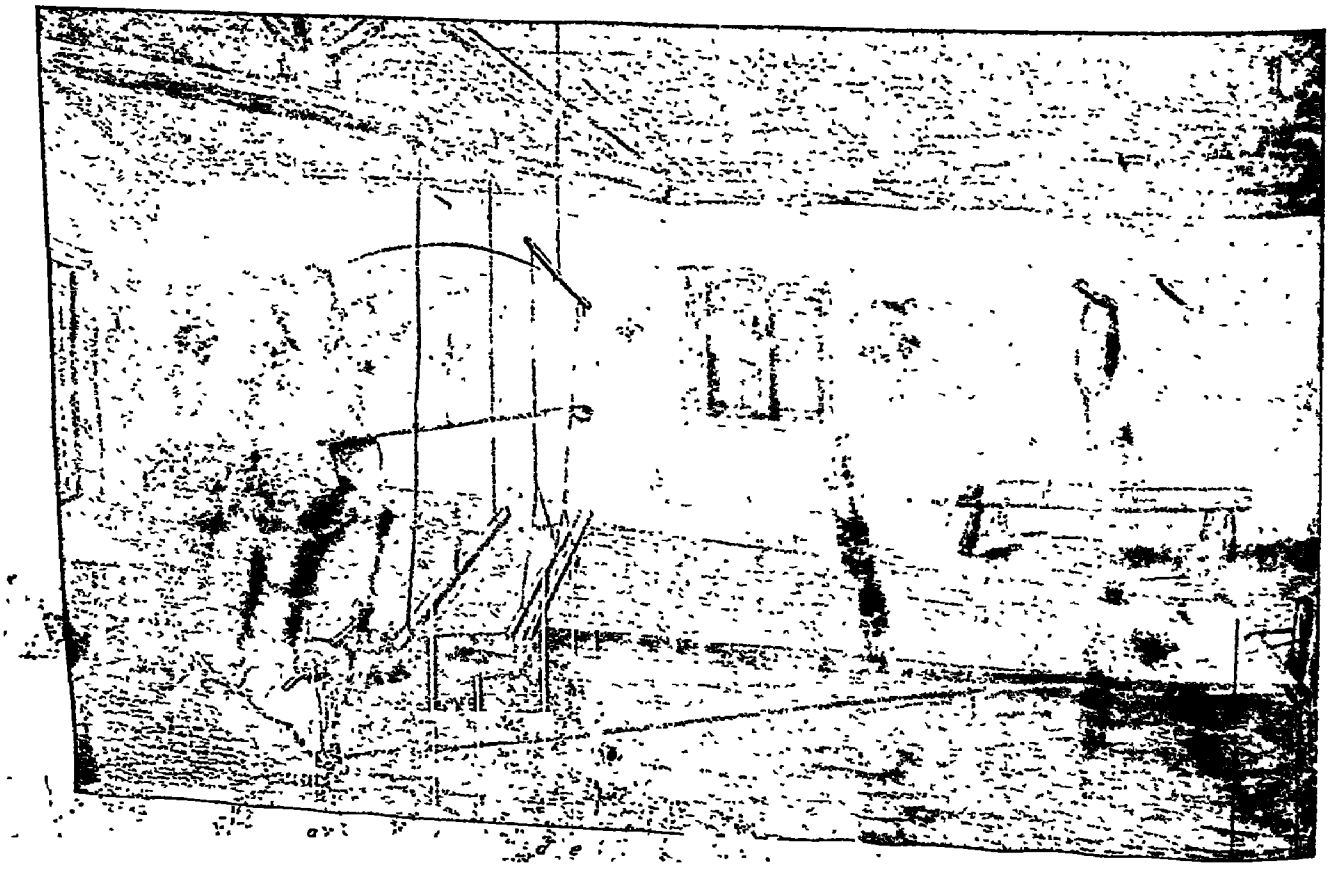
The arrangement of the pegs varies in different places, but the principle is the same everywhere.

The next step is to remove the yarn. This would be a [illegible] process and would certainly result in destroying the order of the threads, if not in breaking some of them, if it were attempted while the yarn was stretched. The centre peg No. 4 is, therefore, pulled out, and the slackened threads are [illegible] easily removed; the leases being preserved by previously inserting [illegible] cord



Sizing the Warp.

Plate IV.



through each of the loops formed at the middle pegs Nos. 2 and 6 and tying the threads together.

Through the loops at each end of the threads a bamboo rod is now inserted, of sufficient length to admit of the threads being arranged on it according to the number required per inch of width of fabric. One of these rods is then secured to two pegs in the ground and the other is fastened by a rope passing over a trestle to another peg in the ground or wall. By raising the trestle into a vertical position, the warp threads are stretched tight, and they are then arranged at their proper distances from each other.

The warp is now ready for sizing, an operation shown in Plate III. The sizing paste is generally made of crushed tamarind seeds boiled in water, though in some places, probably where tamarind seeds are not to be had, a paste made of *kodri*[1] *or ragi*[2] flour is used. The paste is applied with a heavy brush made of palm fibres. The object of sizing is to strengthen the warp. The process is therefore more general in the Deccan, where the staple of the wool is very short, than it is in Gujarát or Sind, where the finer qualities of white blankets are not sized at all.

After being sized and allowed to dry, the warp is taken as it is to the loom. The thin rod is fastened to the weaver's beam and the stout rod becomes the back beam of the loom. But before this is done the reed has to be placed in position. For this purpose the warp is slipped off one of the rods and the threads drawn through the divisions of the reed, which is hanging from a beam in the roof, and the rod is then passed through the loops and fastened in position. The next step is to affix the healds, one set of which is attached to the upper threads and the other to the lower threads. The healds are suspended as shown in Plate IV, and are worked by treadles underneath. As one set of healds is depressed, the other set is automatically raised by the bar from which both are suspended, so that the original upper and lower threads alternately change places. After every cast of the shuttle, the weft is beaten home with the reed, and the healds reversed. The shuttle is generally a bobbin fixed in a piece of split cane, of which both ends are closed, or in a piece of buffalo horn; but sometimes is simply a short length of hollow cane, of which one end is open, and in which the woollen yarn is placed in a ball at the bottom. The weft yarn is not sized at all in most places, the only reported exception to this rule being Ratnágiri, where it is said that the weft yarn is dipped into the ordinary tamarind seed paste and used while still wet in order that the threads may lie closer to each other. In other places the weft yarn is used after being damped in water or more generally quite dry. As the weaving proceeds the weaver from time to time slackens the rope by which the back beam is held in position and winds the woven portion on the weaver's beam; after which the warp is again tightened by the rope fixed to the back beam.

The natives of India probably possess few articles of such general usefulness the blanket. The dweller in the town may use it merely as an article of bed-

1 Paspalum scrobiculatum.
2 Eleusine coracana.

clothing, but the cultivator or labourer finds an infinite variety of uses to which his needs compel him to put it. To the herd watching his cattle in the fields, the blanket affords warmth in the chill of the early morning and protection from the heat and glare of the sun at noon. The labourer winds it round his head and uses it as a pad on which to carry his basket load of earth. All classes of the peasantry use it as a protection against rain. In Belgaum the heaviness of a shower is measured by its capacity to wet a blanket through.

In Gujarát blankets are woven by Ravalias, Gadarias, Dhangars and Dheds; in the Deccan generally, and in the Konkan by Dhangars and Sangárs (a subdivision of the former caste), and in the south of the Presidency by Kurubars. Scattered families of Mahomedan butchers are also engaged in the industry. In Sind blanket weavers are generally Koris and women of the Khosa, Lashari, Mari and other Baluch tribes.

The finest woollen fabric of the nature of a blanket is the Gujarát 'dhábli,' of which there are two samples (Nos. 1 and 2) in the collection forwarded to Government with this pamphlet. The dhábli is really a shawl and is generally used by strictly orthodox Bráhmans as a garment in place of the ordinary cotton dhoty in their daily religious and quasi-religious ceremonies, including even the preparation and taking of food. For such occasions the Brahman's ritual prescribes a silk or woollen garment, cotton being considered impure, and as silk is beyond the means of many, woollen dháblis are worn, particularly by Gujarátis. These garments range upwards from 4 feet × 2½ feet, price 10 annas, to 11 feet × 4½ feet, price Rs. 3-4. They are made of the finest white wool and are not sized.

Throughout the Presidency, excluding Sind and Gujarát, blankets are generally known as either 'kámbli' or 'ghongadi,' both terms being practically synonymous. If there is any distinction, the latter term is perhaps more correctly applied to the coarse grey or black blanket worn by the peasant, and the former to the finer varieties. Two strips sewn together breadthwise form a 'kámbla.'

The ghongadi is heavily sized, very cheap and most serviceable. The usual dimensions are 9 feet × 4 feet; weight about 3 lbs. and price from Re. 1-8.

In Gujarát the ordinary term for a blanket is 'kámlo' or 'kámal'; the finer variety being known as 'kámli,' and a very thick coarse article as 'chummálo.' A Broach kámlo 7 feet × 4 feet costs about Re. 1. In Sind the ordinary woollen blanket is called 'katho.' This is generally made of white wool and is not sized. The katho appears to be woven in strips from 14 to 18 feet long and about 2 feet wide; the strips being afterwards cut in halves and the two pieces stitched together breadthwise. The price of a katho 9 feet × 4 feet ranges from Rs. 2 upwards. An extremely durable, soft blanket is also made in Sind of camel's hair.

In Ratnágiri, and probably also in other places in the Deccan and Konkan, small woollen mats called 'ásan' are made. These are woven exactly like blankets, and in the sample procured from Ratnágiri both warp and weft are heavily sized. The usual dimensions are 6 feet × 2 feet, and the price of such an article is 8 annas. The ásan is used by Bráhmans to sit on in religious ceremonies

Coarse sacking called 'boro' is made in Sind, chiefly of goat's hair, and is used for grain bags and double sacks for pack camels and bullocks and for saddle bags for riding camels and horses. It is either black or dull brown in colour and is extremely strong. A strip 9 feet × 3 feet can be had for Rs. 3.

The collection referred to contains 19 samples of the articles described in this chapter and 12 samples of woollen goods made at the Bombay Woollen Mill, which have been included for comparison with the products of the hand-looms.

CHAPTER IV.

Carpets and Rugs.

Woollen pile carpets are made in the prisons at Yerowda, Thána, Ahmedabad, Karáchi, Hyderabad and Shikárpur; also in a few factories in and around Ahmedabad, owned by the Ahmedabad Carpet Manufacturing Company, and on a small scale at Bubak in the Karáchi district. A few are also turned out at the Sir J. J. School of Art in Bombay.

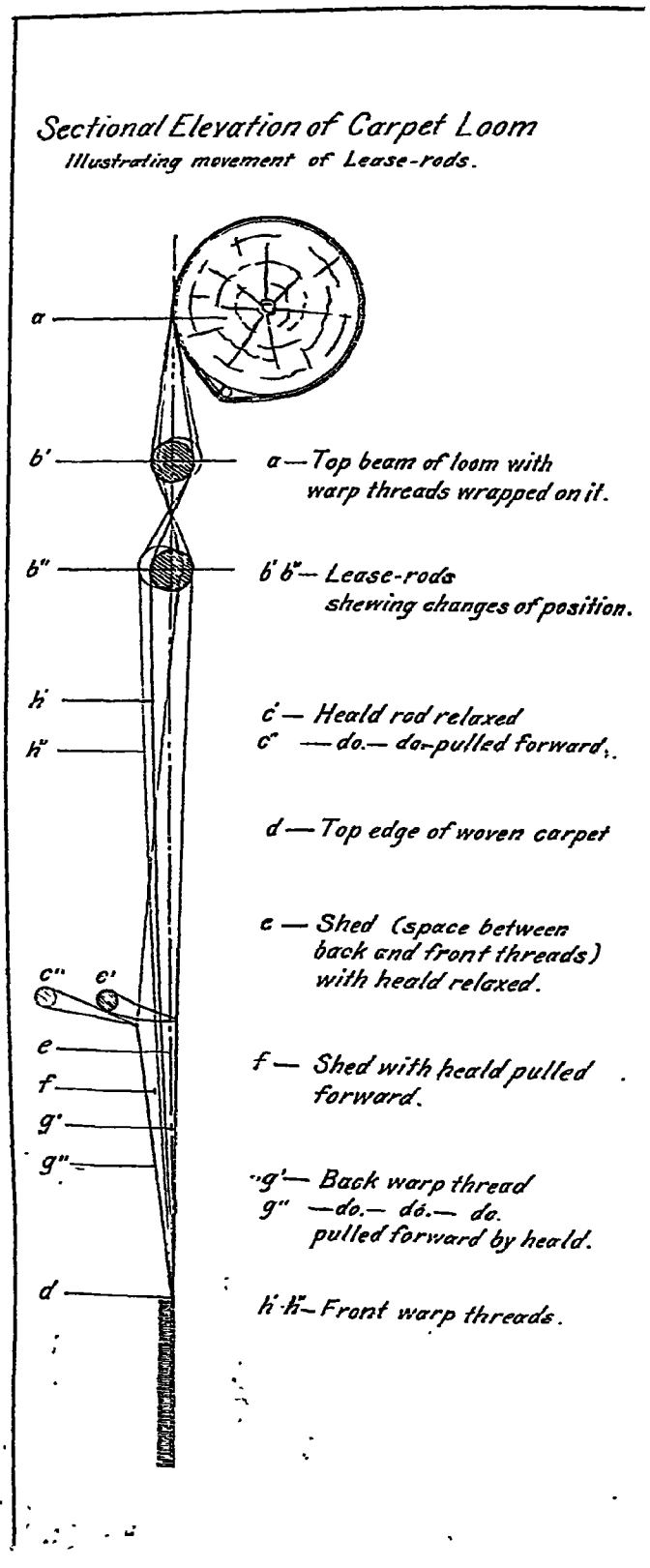
The method in all these places is much the same. The loom is a vertical frame consisting of two upright beams fixed in the ground 12 or 14 feet apart. Between these beams there is a pit 3 feet wide and of the same depth, in which the weavers sit or dispose of their legs when working at the commencement of the carpet. The upright beams are from 6 to 10 feet above ground. Between them, at the top and bottom, are fixed two horizontal beams, which are capable of being turned by a lever, and between these beams the warp is stretched.

The warp is generally cotton yarn of some coarse count, several strands being twisted together for the sake of strength. Cotton is simply used on account of its cheapness. The only place where a warp of woollen yarn is used is the Bombay School of Art. The warp yarn is first arranged on two upright pegs fixed in the ground about 3 feet further apart than the length of the carpet to be woven, to allow for contraction during weaving and wastage at both ends. The threads are laid on, to the number required for the width of the carpet, in such a manner as to cross each other midway between the pegs at each turn. At either extremity, on the outer edge of each peg, the threads are laced together to preserve their relative order. The number of threads in the warp is seldom less than 12 per inch and runs up to as many as 32 in finer work, where warps of cotton and wool are used. In the Bombay School of Art, where still finer qualities are made, a silk warp is used when anything above 32 threads to the inch is required.

The requisite number of threads having been arranged on the pegs, one peg is removed to slacken the warp, which is then slipped off the other peg. Through the loops at either end of the threads a bamboo rod is inserted, which is long enough to hold the warp, when the threads are arranged according to the requisite number per inch. The rods are then fastened to the upper and lower beams of the loom respectively and the warp tightened by being wound on the upper beam, which is turned by a lever.

The next step is to attach the healds. These consist of two rods, one knitted by a series of loops to the back row of warp threads, and the other to the front row, both rods being connected in such a manner that the drawing forward of the one automatically relaxes the other. It is not absolutely necessary to have two healds; the heald attached to the back row of threads is alone indispensable, inasmuch as it is necessary after each row of the weft has been completed to reverse the relative positions of the front and back warp threads; that is to say, if in making one row of the weft the front warp threads were in their natural position, in the next weft row the back warp threads must be pulled forward in front of the other threads. The second heald attached to the front warp threads is only useful in increasing the width of the 'shed' (space between the back and front rows of warp threads) when the other heald is relaxed.

To maintain an equal tension upon the back and front rows of the warp during the repeated processes of reversing the heald, an ingenious device has been adopted. A rod, technically called a lease-rod, is inserted between the warp near the top beam of the loom. The heald is then reversed and another rod inserted in the new shed about 4 inches below the first, as shown in the accompanying illustration. The warp threads are seen to cross each other midway between the rods. The lower lease-rod is prevented from slipping down by being secured at both ends to the upper lease-rod, which is held in position by the crossing of the threads below it. In the illustration only one heald is shown for the sake of simplicity, and as a matter of fact a single heald is generally used in practice



It is now clear that the pulling forward of the back warp threads causes the two lease-rods to move laterally in opposite directions, the effect of which is to straighten and therefore to shorten those threads between the lower lease-rod *b''* and the point where they come off the beam *a*, thereby lengthening them between the lease-rod *b''* and the fell of the carpet *d*, and allowing them to be pulled into their new position by the heald. The effect upon the front threads *h' h''* is to increase the tension upon them, when the tension upon the back threads is increased, *i.e.*, by the pulling forward of the heald, thereby maintaining an equal tension upon both rows of the warp throughout the operations of weaving.

Everything is now ready for weaving. Usually one weaver is allotted to every 18 inches or 2 feet of width of carpet, and each weaver has a bundle of short lengths of woollen yarn of various colours hanging by him within easy reach. A prompter at the back of the loom reads out the pattern from a sample or diagram in front of him.

A few rows of the weft are first inserted by shuttle in the ordinary way with cotton yarn, in order that the warp threads shall not lose their relative distances. Each weaver, as his portion of the pattern is called out, taking a piece of woollen yarn of the right colour, passes an end of it between two strands of the front row of warp threads, carries it round the corresponding back thread on the right, brings it forward and again passes it in between the two front threads first mentioned, carries it round the corresponding back thread on the left and then forward once more, pulling the two ends downwards until the tie rests on the row below. These ends are then cut off with a knife about an inch from the web. As each row of such ties is completed, two or three weft threads of cotton or woollen yarn are woven in, forming the basis of the fabric and at the same time binding the pile. As explained above, cotton yarn is used in the warp and weft simply for the sake of economy. When the warp is of wool or silk, the binding weft threads are of wool, and such carpets are much more durable than those made with a cotton warp. From time to time the pile is clipped over with a pair of scissors to form an even surface, and the portion thus clipped is wound on the lower beam, the warp wrapped on the upper beam being unrolled to a corresponding extent. The pile, which varies from $\frac{3}{16}$ths to $\frac{3}{8}$ths of an inch in depth, completely hides the cotton or woollen threads, both in the warp and weft.

The finest pile carpets in this Presidency are undoubtedly those made at the Bombay School of Art, where, regard being had solely to instruction and not to profit, the materials used are the best obtainable, the designs are generally the most elaborate and the quality of the workmanship unimpaired by any necessity for haste. Naturally carpets made under such conditions are precluded from competing in the market with those made on commercial principles, and not only so, but the output is too insignificant to create a demand.

Next in point of quality come the carpets made in the jails, Yerowda ranking first in this respect. Some of the best designs in the Yerowda Prison have been copied from samples of the old Bijápur carpets procured from the Asar Mahál. These carpets, which are probably 250 years old, are believed to have been ordered from Kashmir and Agra and to have been copied from Persian or Turkish models. Their peculiar charm consists in the wonderful intricacies of

pattern and border and the beautiful colouring, which in no single case is ever glaring, with none of the crude reds and yellows and staring blues and greens, so frequently seen in modern work. If, as seems unlikely, these monuments of a departed glory were made in Bijápur, the industry, which must have attained a high degree of excellence, has since disappeared as completely as the glory they commemorate. There is at the present day no trace of such an industry within the Bijápur district.

Another feature of interest in the Yerowda carpets is the manufacture of carpets of undyed wool, the natural colours being so perfectly blended as to produce a design of unexpected beauty.

The Ahmedabad Carpet Manufacturing Company, whose carpets are ranked next after the products of the jails, are at present working under a contract with Messrs. Tellery & Co. of Bombay, who take their whole out-turn. In fact, the supply is believed to be unequal to the demand. Perhaps it would not be out of place to notice in passing the rapid development of the trade in Indian carpets within the last five years. The value of carpets exported from the Indian Custom Houses is as follows :—

1894-95.	1895-96.	1896-97.	1897-98.	1898-99.
Rs.	Rs.	Rs.	Rs.	Rs.
10,07,384	14,71,914	17,51,421	18,93,711	19,46,198

About 80 per cent. of the trade is with England, the United States coming next with nearly 18 per cent., though it is likely, judging from the rapidly increasing demand in America for Indian carpets, that a considerable number is re-exported to the United States from England. Shipments of carpets from India for the United States have risen from 4 per cent. of the trade in 1894-95 to 18 per cent. in 1898-99. The industry, which has thus so rapidly developed, seems secure and likely to increase, for neither Europe nor America, with their highly organized and expensive labour, can compete with India in an operation which is of necessity manual and very tedious.

A comparison is exhibited below of the prices of carpets made at the Bombay School of Art, the Yerowda Prison and the Ahmedabad Carpet Manufacturing Company's establishments.

Place.	Nature of warp.	Number of stitches per inch.	Price per square yard.
			Rs. a. p.
Bombay School of Art	Woollen	8	30 0 0
	„	11	45 0 0
	„	16	60 0 0
	Silk	20	120 0 0
Yerowda Central Prison	Cotton	12	15 12 0
	„	15	18 0 0
Ahmedabad Carpet Manufacturing Company	Cotton	6	7 0 0
	„	8	8 12 0
	„	10	11 8 0
	„	12	15 0 0

Each stitch requires two warp threads, and each tie made as described in an earlier part of this chapter means two stitches. It will be noticed that the price of the Ahmedabad 12-stitch carpet is slightly lower than that of the corresponding article made in the Yerowda Central Prison, and also that the qualities of the carpets made by the Ahmedabad Company are generally lower than those of the carpets made at the jail. The reason for the high prices of the carpets made at the School of Art has been explained above.

Of the industry in Bubak, Mr. Cadell, acting Collector of Karáchi, in the early part of 1898, writes—

"Perhaps the only article of manufacture having any artistic value is the woollen carpet or 'ghálicho' of Bubak, but the industry in this article may now be said to be in its last agonies. There is a much smaller demand for the Bubak carpet now than there used to be, the Persian carpets having proved more attractive to the ordinary purchaser, and hardly 50 carpets are now produced at Bubak in a year. Several families of manufacturers, who were known as 'ghálicho báfs' (Persian 'ghalicho,' a carpet and 'báftan' to weave), are now earning their livelihood from other occupations. The carpets are generally uniform in size and pattern and are sold at 8 annas per square foot, which means about 10 or 11 rupees a piece."

A sample (No. 21 of the collection) has been obtained of the Bubak carpet It is made with 12 warp threads, *i.e.*, 6 stitches to the inch, and the price, Rs. 4-8 per square yard, is far below that of a carpet of the same stitch made by the Ahmedabad Carpet Company. But if the sample is a fair one and up to average, the Bubak carpet must be pronounced to be an inferior article and of little commercial value.

Rugs (Sindhi 'farási') are made in various places throughout Sind by Baluchis. The weaving is generally done by women. The best farásis, of which samples have been obtained, come from the Guni táluka of the Hyderabad district and from the Kohistán mahál, Karáchi district. No. 22 of the collection is a sample of the Guni rug and is very similar to the Kohistán article. In both cases the warp and some portion of the weft are cotton. Another sample (No. 20) from the Mirpur Sákro táluka of the Karáchi district is made of woollen yarn throughout, but in colouring and finish it is inferior to those from Gani and the Kohistán.

Farásis are woven with a shuttle in the ordinary way, the only difficulty being the production of the pattern, which, although regular, occupies the whole of the fabric. The pattern is obtained in the following way: the weft thread, instead of being inserted at one throw of the shuttle through the whole breadth of the web, is stopped at the proper place, floated at the back over several warp threads and brought up again at the place where a spot or length of the particular colour is required. In each row several threads of different colours will be found floating one over the other at the back of the fabric. Both camel's and goat's hair are sometimes used, instead of or in combination with wool. These rugs are generally 6 feet long and 4 feet broad. The price of the superior article from Guni or the Kohistán varies from Rs. 25 to Rs. 32, whilst the inferior kinds can be had for as little as Rs. 5.

Farásis are commonly used by the upper classes as prayer mats and rugs on which to sleep. They are seldom if ever spread on the floor as carpets.

Similar rugs are also used to place on the backs of riding camels underneath the saddle. The Sindhi name for these is 'tapar.' They are made in two pieces, which are stitched together at the ends only, leaving an aperture sufficiently long to admit of the rug being placed over the camel's hump. They are from 4 to 5 feet long and about 3 feet broad. The price varies from Rs. 2-8 to Rs. 20.

A cheaper and coarser sort of rug, called 'kharir, is also very common in Sind. This, like sacking, is made chiefly of goats' hair, the black or brown background being relieved by a few stripes of white and red. The usual size is from 6 to 8 feet in length and from 3 to 4½ feet in breadth. The price is about Rs. 6.

Horses' nose-bags ('tobro'), sacks ('boro') and saddle-bags ('khurzin') are also sometimes made of the same material and with the same comparatively elaborate pattern as the farási. No. 23 of the collection is a sample of such a nose-bag. As a rule though such articles are made of the thick coarse sacking mentioned in the preceding chapter.

CHAPTER V.

FELT.

Felt is made throughout the Presidency, with the exception of a few districts. It is generally used as a pad to be strapped on a horse's back as a saddle, or as a 'numdah' underneath a saddle. When used for this purpose it is called 'tal' in Sind, 'dali' in Gujarát, and 'jin' or 'burnus' elsewhere. The 'burnus,' whenever felt is called by that name, is also used as a mattress. In Gujarát a felt cape called 'ghumti,' 'mochli,' etc., is worn during the monsoon as a protection from the rain. One of these articles is shown in the accompanying photograph, Plate V, taken at Broach.

The method of manufacture is everywhere much the same. Unspun wool, cleaned by the Pinjári's bow or picked by hand, is spread out evenly on a rush mat or wet cotton cloth. In some places this layer is then sprinkled with water, though the custom is by no means general. The Collector of Hyderabad states that this water is as a rule squirted from the human mouth, by which means some mysterious virtue is possibly supposed to be communicated to the material. The layer of wool is then moistened with an equal weight of soapsuds or some other paste made either of 'udid' (black gram) flour, fenugreek or the berries of the 'karanj' tree (Pongamia Glabra) after the oil has been extracted. Then another layer of wool is added, which is moistened in a similar way, and so on until the desired thickness has been reached. The edges are now turned in according to the shape required, and the wool is then rolled up in the mat or cloth and rolled backwards and forwards under the continual pressure of both forearms for two hours or more until the fibres, one of the characteristics of which is their natural tendency to curl, have been shrunken and interlaced into

Plate V.

Broach peasant wearing 'Ghumti'

one mass. The felt is then spread out to dry and harden in the shade. A rough pattern can be put in by arranging wisps of white or black wool as the case may be upon the top layer before the rolling commences.

The price of a dali 3 feet × 1½ feet is about 6 annas and of a ghumti 3½ feet × 4½ feet about 12 annas. A burnus used as a mattress 5½ feet × 3¾ feet and half an inch thick fetches in Ratnágiri Re. 1-4. Felt making appears to be almost confined to Mahomedan butchers and Pinjáris, though in Ahmedabad Mochis and in Khándesh Dhangars also make it.

Four samples of felt will be found in the collection.